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Muscadine Grape Paste



MUSCADINE GRAPE PASTE is an economical, appetizing, and nutritious sugar-saving substitute for candy and other confections.

It is excellent in combination with cheese, and especially with cottage cheese, as a substitute for the salad course or for a dessert.

It may be made from the fresh fruit or preferably from the pulp or pomace left from grape juice and jelly making. It may be made with grape sirup or corn sirup instead of sugar.

The pulp may be canned and the paste made at any convenient time or when desired for use.

The making of Muscadine grape paste is recommended for home use, but it may be made profitably for market where grapes are abundant.

This bulletin gives directions for securing suitable fruit, the extraction of the pulp, and the sweetening, cooking, drying, and storing of the product, as well as the making of various combinations, fancy pastes, and pastes from other fruits.

Contribution from the Bureau of Plant Industry

WM. A. TAYLOR, Chief

Washington, D. C.

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MUSCADINE GRAPE PASTE.¹

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DESIRABILITY OF FRUIT PASTES.



FRUIT PRODUCTS, such as jams, preserves, jellies, and other forms, some of which have not been used generally in this country heretofore, have been made during the past year or more to an increasing extent as a means of utilizing surplus fruit. Among these, none are more deserving of attention than the fruit pastes. Though comparatively little known here, the making of fruit pastes or products similar to them has been practiced for many generations, particularly in some parts of the Old World.

In many tropical countries paste is one of the chief forms in which surplus fruits are conserved for future use. In fact, a common practice in such places is to use cheese with fruit pastes, the combination serving much the same purpose that a salad course does in the United States. This combination of paste with cheese seems especially appropriate as a present suggestion because of its utilization of cottage cheese,² the product being desirable either as a salad or a dessert.

Fruit pastes are not only wholesome and delicious, but economical, because they do not require excessive quantities of sugar. Like the fruits from which they are made, they provide the body with substances needed to keep it in health, and for this and other reasons are often considered more wholesome for children than candies made chiefly of sugar. The making and using of fruit pastes as a substitute for candies and other confections rich in sugar are, accordingly, especially appropriate at the present time. Further, the paste can be made with sugar substitutes, such as Muscadine grape sirup, corn sirup, homemade cane sirup, and low-grade sugar, instead of high-

¹ The information contained in this bulletin has been presented through the cooperation of the home demonstration workers of the Office of Extension Work, in the South, of the States Relations Service, at many meetings of county home demonstration agents, and at other gatherings held throughout the South in the interest of home economics.

² Farmers' Bulletin 850, "How to Make Cottage Cheese on the Farm," and Circular 109 of the Office of the Secretary, "Cottage Cheese Dishes," will be sent free on application to the Secretary of Agriculture.

grade pulverized sugar. It is recommended that such substitutes be given the preference.

Among the pastes none is more attractive than that made from Muscadine grapes. The use of these grapes in combination with other fruits for paste making generally results in an improved product. It is entirely practicable and advisable to use the same grapes for preparing Muscadine grape juice, jelly, and paste.

MUSCADINE GRAPE PASTE MAKING.

The process of making Muscadine grape paste is quite simple, but certain factors must be considered in order to make a desirable product. The main steps in paste making are (1) the securing of suitable fruit, (2) the separation of the pulpy portion of the fruit from the juice, seeds, and skins, (3) the addition of the proper quantity of sweetening, (4) the cooking of the paste until it is at the right degree of stiffness or concentration, and (5) the drying of the product.

THE VARIETY OF FRUIT TO USE.

The question of variety of Muscadine grapes for paste making is not so important as in making grape juice and jellies. Nevertheless, it is important to use the varieties which will make a paste of the desired quality. Generally speaking, those varieties which have the meatiest pulps are most desirable, since such pulps have the ideal proportion of moisture to dry matter; such varieties also yield a larger quantity of pulp from a given measure of fruit.

There is some variation in the flavor of pastes made from different varieties. Those of high sugar content, such as the Thomas, yield the best and highest flavored pastes. Varieties which owing to their pectin content are most desirable for jelly making will make a product with the most attractive appearance, because of the fact that the paste of such varieties when equally and sufficiently firm will be more nearly transparent.

The color of the finished product may be influenced greatly through the choice of varieties. For example, the James makes the darkest paste of any of the standard varieties, a very dark brown color. The Flowers makes a very attractive light-yellow paste of approximately the same color as apple paste. The Thomas makes a light-brown paste intermediate in shade between that of the Flowers and the James, while the Eden paste is a little darker than that of the Thomas. The Scuppernong variety, because of its light color and high pectin (the jelly-making substance) content, makes a light paste, resembling somewhat that of the Flowers, but having a more greenish tinge and a more jellylike consistency.

One should also consider the acidity and sweetness of the fruit and its general condition. The grapes used in paste making should be

sound and fresh, fully ripe, but not overripe. The fruit of varieties of high acid content, of course, makes pastes which are sprightly as compared with the product of varieties having a low acid content. The wild Muscadine grapes for this reason make a more acid paste than most of the cultivated varieties; in fact, a slight additional quantity of sugar or sirup is advisable when their pulp is used. The pulp of sweet varieties needs less sweetening. It apparently makes little difference in the finished product whether the pulp for paste making is secured from the whole fresh fruit or as a by-product from the making of jelly or other grape products.

It is of importance to use freshly harvested fruit for paste making. Fruit that has been standing for some time, especially in large containers, may have broken and slightly fermented berries among the sound fruit. These will cause a discoloration of the pulp, for in the process of fermenting the color in the skin is set free.

METHODS OF OBTAINING PULP.

From fresh fruit.—Pulp from fresh fruit is obtained by crushing the grapes and separating the pulp from the skins and juice. This can be done most effectively by using a small homemade hand crusher, such as is illustrated in Farmers' Bulletin 859,¹ then picking out the skins and draining off the juice. The pulps should then be heated, with sufficient stirring to prevent their sticking to the cooking vessel, until they appear white and full of air bubbles. When they have reached this stage, they will readily break on being pressed slightly between the fingers. They should then be worked through a potato ricer or colander, for the purpose of separating the pulp from the seeds. Pulp secured in this manner may be used at once for paste making, or it may be canned in glass containers for use at any time during the winter.

Canning the pulp.—When canning the pulp, the jars should be filled only to the neck, for the pulp expands on heating. The jars should be heated in a water bath (as recommended in Farmers' Bulletin 859¹ for pasteurizing Muscadine grape juice) until the pulp within the jars reaches the temperature of 180° F., when the jar should be sealed at once. If a thermometer is not available, allow the quart jars of pulp to remain in the bath for one hour after the boiling point is reached, the boiling to be continued during this time.

In preparing the pulp from fresh fruit in this manner, a variable amount of water will be combined with it, depending upon how much moisture is contained in the seed cavities. Very juicy varieties will yield a moister pulp than those with less juice; the pulp of the latter is more desirable. If the pulp secured from juicy varieties seems entirely too moist, it should be placed in a double cheesecloth

¹ This bulletin, entitled "Home Uses for Muscadine Grapes," will be sent free on application to the Secretary of Agriculture.

bag and squeezed by hand sufficiently to remove a part of the moisture. One of the chief causes of failure in making Muscadine grape paste is due to the fact that consideration is not given to this matter of moisture content in the pulp used. A certain amount of moisture in the pulp is necessary, but if too much is present, a caramel rather than a paste will be secured as a finished product.

THE THRIFTY housewife will invariably use for her paste the pulp obtained as a by-product when making other products.

If unfermented grape juice is being prepared from Muscadine grapes, it is an easy matter to secure the pulp necessary for paste making as a by-product from the grape-juice operations. After squeezing the juice from the grapes in the farm press, as recommended in Farmers' Bulletin 859, entitled "Home Uses for Muscadine Grapes," there is left in the press the pomace, or "cheese," which consists of the skins, pulps, and seeds. The pulps can be readily picked from this cheese by children. By heating until it appears white and full of air bubbles and then putting it through a colander or similar utensil, the pulp is separated from the seeds. Pulp secured in this manner will not be satisfactory unless the grapes used in the press were clean and sound.

The best means of securing the pulp is, perhaps, as a by-product of jelly making.¹ The pulp and juice are boiled for a short time in order to dissolve the pectin. The mixture of juice and pulp is then hung in a drain bag made of double cheesecloth. After the juice for jelly making has drained out, the pulp and seeds are left. Without further cooking, this mass can be put through a ricer, colander, or similar utensil in order to remove the seeds. It is then in just the right condition for paste making.

Low-quality paste.—A pulp of inferior quality but suitable for paste making may be secured easily by merely stewing the fruit or pomace until it is broken down thoroughly, putting it through a ricer or colander, and hanging up in a double cheesecloth bag the soft, pulpy, juicy portion that goes through the ricer, so that the excess moisture will drain off.

If a fruit, wine, and jelly press is available, pulp for paste may be secured quickly by grinding the fruit through this machine and hanging the pulp and juice which is delivered, separate from the skins and seeds, in a double cheesecloth bag, to allow the excess juice to drain off.

¹ The making of jelly from the pulp and juice of the grape after discarding the skins has been shown by the writer of this bulletin to be desirable as an easy and sure means of avoiding argol crystal formation (irregularly shaped acid crystals) in Muscadine grape jelly.

Pulp secured by stewing the fruit or by use of the fruit, wine, and jelly press will make paste that is more or less reddish, depending on the amount of color in the skins of the grapes used. Such paste is not transparent. It is of value, however, from the standpoint of securing variety in the product.

High-quality paste.—If it is desired to make paste of high quality, in addition merely to separating the seeds from the pulp it is best to work the pulp through a purée strainer in order to remove the coarser portions, the—"brushes," which are the bundles of fibers connecting the seeds in the berry with the stem of the grape clusters. With most bunch grapes and some of the Muscadines, these bundles remain with the stem when the grape is pulled from its point of attachment, but in nearly all Muscadine varieties the brush remains with the berry rather than with the stem when they are separated.

If the grape pulp is to be used with other fruit pulps in paste making, the combination should be made before proceeding with the process.

SWEETENING.

The best kind of sweetening to use in making Muscadine grape and other pastes is powdered, pulverized, or confectioners' sugar. This gives a product with the smoothest finish and is preferable to liquid sweeteners, such as sirups, owing to the fact that less cooking is required in order to drive off the moisture and that the paste is, accordingly, lighter in color and more attractive in appearance.

However, other sweeteners can be used satisfactorily. Perhaps the best of these is Muscadine grape sirup, made in accordance with the directions given in Farmers' Bulletins 758 and 859.¹ Commercial corn sirup, especially the light-colored type, may be used successfully. Grade C sugar may be used also. If the housewife has homemade sugar made from cane sirup, it may be used for paste making, though it is not so good as grade C sugar, since it has more flavor of its own. Ordinary granulated sugar is not recommended, though it can be used. Ribbon cane sirup has not enough welding power to be satisfactory.

If a solid sweetener, such as powdered sugar, is used, the best proportion for Muscadine grape paste making, when economy and quality of the finished product are considered, is one-half pound of sugar for each pound (or pint) of pulp. If the pulp is drier than the average, it is desirable to use a slightly increased quantity of sugar. Less sugar in proportion to the pulp is required than would be called for in making paste of such a fruit as the apple, which needs more sugar than the grape in order to produce a pasty consistency rather than an apple sauce. If economy in sugar is not

¹ These bulletins entitled, respectively, "Muscadine Grape Sirup" and "Home Uses for Muscadine Grapes" will be sent free on application to the Secretary of Agriculture.

a factor, and the product is not to be stored, a better flavored paste can be made by using three-quarters to a pound of sugar with each pound of grape pulp. Such pastes, however, are generally too soft to keep well when stored. When using a liquid sweetener in paste making, a pint of sirup may be considered equivalent to a pound of powdered sugar. It is preferable, however, to use it in the proportion of 1 cup of sirup to 2 cups of grape pulp. A darker product results when liquid sweeteners are used, owing to the longer cooking period required.

COOKING.

In cooking the paste, generally speaking, the same principles are involved as in jelly making. It is better to use milk pans of such size that the paste can be spread out in a thin layer rather than to cook it in a deep vessel like a saucepan or preserving kettle. By using milk pans the moisture is driven off with the greatest possible speed and this tends to make a bright, attractive product. The necessity for a broad-bottomed vessel is greater where a liquid sweetener is used.

While it is important to drive off the moisture as rapidly as possible, there is, on the other hand, a limit to the speed at which the paste can be cooked. If boiled too rapidly, it sputters and pops out of the vessel and may burn seriously the one who is attending to the cooking. To prevent this it is necessary, especially when the paste reaches the finishing point, to cook it over an asbestos plate or mat. This mat is not so important on an ordinary kitchen range as it is for a gas or oil stove, for on a range burning coal or wood the paste can be drawn back from the hottest part of the stove. While the paste does not require rapid stirring, it needs almost constant attention, especially as it nears the finishing point. It should be stirred systematically to prevent its burning, and for this purpose a wooden paddle having a square edge is decidedly better than a spoon. The paste should be cooked until it is so stiff that when the paddle is drawn through it the mass will not readily flow together again. Another way to describe the finishing point would be to say that the paste should be cooked until it forms a rather definite mass which can be shoved from place to place about the cooking vessel with the paddle instead of flowing. When it has reached this stage, it should be poured out promptly.

DRYING, CUTTING, AND STORING.

Owing to the stiffness of the paste it is important that it be poured out rapidly, and that as soon as it is emptied from the cooking vessel it be placed in a mold or spread into a sheet one-half inch in thickness on a marble, enamel, or china surface. Large

meat platters, enameled biscuit pans, the bottoms of enameled dish pans if clean, or a marble-topped table are satisfactory surfaces on which to spread it. These should be oiled or greased and ready to receive the paste when it is done. The best grade of oils, those having the least flavor, are most suitable, though for home use lower grade oils, butter, or even a good grade of lard may be used. After being poured out and spread in a layer approximately half an inch in thickness, the paste should be put in an airy but shaded place, such as an open, shaded window, in order that it may dry as rapidly as possible. If it is set in a sunny window there may be sufficient heat to keep the paste soft. While drying, it should be protected from flies by cheesecloth or netting. It should stand at least 12 hours before it is cut.

Cutting the paste.—After having become reasonably dry, the paste may be cut into small pieces. Portions 1 inch square make a convenient size; it is desirable, however, to cut it in various attractive shapes. The individual pieces of paste should then be rolled in granulated sugar and spread out to dry further. It is well to place them at this time with the side up that was next to the surface on which the paste was originally spread. If necessary in order to get the paste thoroughly dry, it may be left for several days, the pieces being turned occasionally.

Drying the paste.—At times in the southeastern part of the United States where Muscadine grapes are grown, there is so much moisture in the air that the paste, instead of drying, will actually take moisture from the air. Such periods can usually be avoided, and for home use it is possible to avoid this by canning the pulp and making the paste fresh whenever it is desired and the weather is favorable. This method has another advantage in that sugar is more abundant and cheaper at some seasons than at others. Again, the difficulty in drying paste owing to weather conditions may be overcome by dipping the pieces of paste in a candy coating without waiting for thorough drying. The use of heat for drying is not practicable, as heat softens the paste. The use of an electric fan under the weather conditions described will merely increase the trouble unless provision is first made for drying and cooling the air to be blown over the paste.

IT IS useless to store paste that is not thoroughly dry; but after it is properly dried it may be kept indefinitely in boxes or similar containers.

The box in which the paste is to be packed should be lined with oiled paper, and a sheet of this paper should be placed between every

two layers of the paste. If the paste is to be kept over a long period it should be put in the driest possible place, and the box sealed to keep out moisture.

VARIATIONS IN PRODUCT.

The foregoing directions are applicable for making a plain Muscadine grape paste. They may be varied more or less for the purpose of securing variety in the products. For example, if paste is made from several varieties of grapes, and pieces of these pastes are served together from the same dish, pleasing color differences will be obtained. The variation in color may be still further increased by serving the grape paste with other fruit pastes.

Coloring the paste.—Still further variety may be obtained by using harmless vegetable coloring, which may be added to a small portion of the paste when it is about two-thirds cooked. While the rest of the paste is coming to the finishing point this part should be worked thoroughly with a spoon, in order to get the coloring matter uniformly mixed with it. Near the end of the cooking process the colored portion should be added to that in the cooking vessel and worked in uniformly by stirring.

Fruit or nut additions.—Just before removing the paste from the stove various mixtures of nuts and raisins may be stirred into it for the purpose of securing variety in the product. With the same object in view, it is desirable at times to place the kernels of nuts or such fruits as candied cherries or raisins on the paste immediately after it is poured out, pushing these garnishings into the mass sufficiently to make them hold firmly as it cools. After cooling, the paste is cut around the garnishing so that each piece has in its center a nut kernel or fruit meat. This makes very attractive paste.

Cutting different shapes.—It adds greatly to the appearance of a dish of finished paste if the pieces are cut into various shapes. It is easy to cut the paste into squares, triangles, diamonds, circles, stars, rings, moons, and various other forms.

Making a paste loaf.—Another good method of preparation is to spread on the cooled paste a mixture of ground nuts and raisins or melted marshmallow, or a combination of the two, and then roll the paste into a loaf, cutting it as one would cut a jelly roll. In cutting this candy loaf it is advisable to use a sharp butcher knife, which should be heated and oiled frequently in order that the cleavages may be smoothly and easily made.

Marshmallow layer paste.—It is also possible to spread paste of one color upon that of another and to cut through the double layer so that each piece will show paste of two colors. It is even more attractive to place between these layers of paste a layer of marshmallow whip or melted marshmallow, since the color of the pastes is set off better by the white of the marshmallow layer than when the layers of

paste are next to each other. For the white layer it is desirable to use the best grade of marshmallows. These should be melted in a double boiler or cereal cooker. It is best to arrange the work so that the paste can be cut in the desired form immediately after placing the marshmallow between the layers, for at times the marshmallow, when it cools, hardens to such an extent that it is difficult to cut it without causing it to pull out in shreds from between the layers. This trouble is especially likely to occur if a poor grade of marshmallows is used.

Paste for sandwiches.—If the paste is cooked only two-thirds of the normal time and is then sealed hot in sterilized jars, it is excellent for use as a filling for sandwiches.

Pulled paste.—If, in making paste, one has used fruit pulp that is entirely too moist, the resulting product, as previously stated, will be a caramel rather than a paste. Should it be noticed that this mistake has been made, the product can be poured out before it has begun to harden, and it can then be pulled, like molasses candy. This makes a very good product and will prevent waste.

Paste in molds.—Again, the paste may be worked into a large solid mold instead of being cut into small pieces. In these molds paste of another color, or even jelly, may be embedded. A butter mold or some homemade form may be used, or even a candy box with top and bottom discarded. A mold measuring 2 by 6 inches is a desirable size; if preferred, these molds may be made of such a size that two of them will pack snugly in a 2-pound candy box. Each mold should be wrapped in oiled paper after drying and before being put into the boxes. The boxes should be sealed by pasting a tape around them where the lid and bottom meet and then stored in a cool, dry place. The mold form is preferable for serving with cheese.

Candy-coated paste.—This is most attractive and delicious, and enables one to secure still greater variations in the product. This coating may be plain or flavored with chocolate, extracts, etc. The addition of chocolate or cocoa will make a brown product, and by the use of harmless vegetable coloring in the candy coating many other attractive colors may be obtained. A plain candy coating will be white, and if used sparingly on pieces of paste, the garnishing will show through the coating in a way to tempt the most fastidious appetite.

Commercial candy makers have their own methods of candy coating. The following brief directions are intended for use in the home: A delicious plain candy coating is made by using two cups of granulated sugar and one cup of cream. Mix and beat thoroughly. Boil until it reaches 230° F. or until a small amount poured on a saucer and stirred with a fork will candy on the fork. Remove from the fire and beat thoroughly; pour into a cereal cooker having boiling water in the lower chamber, so that the candy will not harden. Then dip the pieces of paste into the candy. Thoroughly coat each piece

of paste and then place it on an oiled china, porcelain, or marble surface, making sure that the pieces are completely but not excessively coated. After allowing the candy coating to harden, the paste is ready for packing or serving.

In making the plain coating, water or milk may be used in lieu of cream, but it is not so good. The use of a level tablespoonful of butter with the milk is about equivalent to using cream. If cocoa or grated chocolate are to be used, add these to the sugar before adding the liquid. Use one-tenth pound of cocoa or one-fourth pound of cake chocolate for every two cups of sugar. If desired, vanilla or some other extract may be added just as the candy is taken from the fire. Use three to six drops of extract, depending on its strength, for each two cups of sugar used. Artificial coloring should be added as the candy is taken from the fire, after having dissolved the coloring material in a small amount of the candy while it is cooking. The candy should be stirred as little as possible, never except to prevent burning. If more appropriate utensils are not at hand, forceps suitable for dipping the paste can be easily made by bending a piece of sterilized stiff wire into a loop so that the points meet each other. Such a piece of wire, with a teaspoon to remove excess coating, is satisfactory.

Ground coconut is admirably adapted for addition to the candy coating, to use in place of a candy coating, or for stirring into the paste itself when it is being made.

OTHER FRUIT PASTES.

Owing to the fact that Muscadine grape paste has a certain sprightliness which such a paste as that made from the apple lacks, it is very desirable for blending with other fruits. Generally, the blended pastes are the best. Muscadine grape pulp blends excellently with pulp of the apple, pear, guava, or persimmon. Pastes made from other fruits usually are prepared in the same way as Muscadine grape paste.

Guava paste is one of the best of the fruit pastes. In making it, one should take the precaution to cut the paste very soon after it is poured out, as it hardens much more rapidly than grape paste.

While the apple makes a product which has less character than Muscadine grape paste, its consistency is excellent and it keeps well in storage. The quantity of sugar necessary for making apple paste is greater than that required when Muscadine grapes are used. Three-quarters of a pound to a pound of powdered sugar for each pound of apple pulp is necessary. The apple pulp may be secured either by preparing a cooked apple sauce or by grinding the white meat of the apple to a pulp and then working it through a purée strainer. The former method is better. The apples for the sauce should be peeled and only the white meaty portion used. This should

be cut in small slices or lumps, and if the apples are of average size and juiciness, a pint of water should be added to each dozen apples in preparing the sauce in a saucepan. If a milk pan is used in making the apple sauce, there will perhaps be more evaporation, and for this reason it would be better to use $1\frac{1}{2}$ pints of water for each dozen apples, or to add some water while the apples are stewing if this becomes necessary. In the case of such fruits as the peach, pear, and plum, pulp for paste making can be secured by preparing a sauce in the same way as for apples. The natural juiciness of the fruit must always be considered in order to determine the quantity of water to use. Pulp from berries, such as strawberries, raspberries, and blackberries, can be obtained in the same manner as that from the grape except that care should be taken to put the pulp through a purée strainer in order to get rid of the small seeds.

While Muscadine grape paste is perhaps more likely to absorb moisture than it is to become so hard and dry as to be difficult to use, paste made of some kinds of fruit sometimes gets so dry that it is exceedingly hard and leathery, and in this condition it cuts with difficulty and is not easy to use. When in this condition it may be improved by the following procedure:¹ Cut into cubes and arrange them in a layer in the bottom of a shallow pan and then add a very little water—no more than they will take up. This will soften the cubes. If not soft enough the first time, the procedure can be repeated. The cubes should be soft enough to pierce with a fork and about like a stiff jelly in consistency. They may be served in a fruit salad, or as a garnish, or used in place of jelly. Or, if preferred, they may be coated with candy, as described above.

Additional information regarding the making of paste from other fruits than the grape may be found in Farmers' Bulletin 853, entitled "Home Canning of Fruits and Vegetables."

MUSCADINE GRAPE PASTE AN ECONOMY.

Muscadine grape paste is one of the products which is being emphasized as desirable in connection with the home demonstration work in the South. It is a product which especially appeals to the younger canning-club girls.

Wherever there is an oversupply of either cultivated or wild Muscadine grapes, this surplus should be used, if in no other way, for making paste for home use. The saving of such grapes in the form of paste for use in the home (1) in conjunction with homemade cheese, (2) as a substitute confection, and (3) to spread on bread either for the home table or for school lunches, under present conditions will be patriotic work in preventing waste and adding to the Nation's food supply.

¹ Directions supplied by the Office of Home Economics, States Relations Service.

**OTHER PUBLICATIONS OF THE UNITED STATES DEPARTMENT OF
AGRICULTURE OF INTEREST IN CONNECTION WITH THIS BUL-
LETIN.**

AVAILABLE FOR FREE DISTRIBUTION BY THE DEPARTMENT.

The Propagation of Plants. (Farmers' Bulletin 157.)

Pruning. (Farmers' Bulletin 181.)

Grape Propagation, Pruning, and Training. (Farmers' Bulletin 471.)

Blackberry Culture. (Farmers' Bulletin 643.)

Muscadine Grapes. (Farmers' Bulletin 709.)

Dewberry Culture. (Farmers' Bulletin 728.)

Muscadine Grape Sirup. (Farmers' Bulletin 758.)

Bread and Bread Making in the Home. (Farmers' Bulletin 807.)

Home Canning of Fruits and Vegetables. (Farmers' Bulletin 853.)

Strawberry Culture in Tennessee, Kentucky, and West Virginia. (Farmers' Bulletin 854.)

Home Uses for Muscadine Grapes. (Farmers' Bulletin 859.)

Fresh Fruits and Vegetables as Conservers of Other Staple Foods. (Farmers' Bulletin 871.)

Raspberry Culture. (Farmers' Bulletin 887.)

Homemade Fruit Butters. (Farmers' Bulletin 900.)

Everbearing Strawberries. (Farmers' Bulletin 901.)

Commercial Evaporation and Drying of Fruits. (Farmers' Bulletin 903.)

Farm and Home Drying of Fruits and Vegetables. (Farmers' Bulletin 984.)

Culture of the Logan Blackberry and Related Varieties. (Farmers' Bulletin 998.)

Growing Fruit for Home Use. (Farmers' Bulletin 1001.)

Currants and Gooseberries. (Farmers' Bulletin 1024.)

Strawberry Culture: South Atlantic and Gulf Coast Regions. (Farmers' Bulletin 1026.) In press.

Strawberry Culture: Western United States. (Farmers' Bulletin 1027.) In press.

Strawberry Culture: Eastern United States. (Farmers' Bulletin 1028.) In press.

Fig Growing in the South Atlantic and Gulf States. (Farmers' Bulletin 1031.)

Strawberry Varieties in the United States. (Farmers' Bulletin 1043.)

The Raisin Industry. (Department Bulletin 349.)

FOR SALE BY THE SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C.

The Muscadine Grapes. (Bureau of Plant Industry Bulletin No. 273.) Price, 25 cents.

Insects and Fungous Enemies of the Grape East of the Rocky Mountains. (Farmers' Bulletin 284.) Price, 5 cents.

Manufacture and Use of Unfermented Grape Juice. (Farmers' Bulletin 644.) Price, 5 cents.

